What is claimed is:

1. A polypeptide having a sequence corresponding to the sequence of a portion of a chemokine receptor and capable of inhibiting the fusion of HIV-1 to $CD4^+$ cells and thus of inhibiting HIV-1 infection of the cells.

2. A polypeptide having a sequence corresponding to the sequence of a portion of the chemokine receptor, CCR5 and capable of inhibiting the fusion of HIV-1 to $CD4^+$ cells and thus of inhibiting HIV-1 infection of the cells.

3. The polypeptide of claim 2 comprising amino acids having a sequence of at least one extracellular domain of CCR5.

4. The polypeptide of claim 3 wherein the extracellular domain is the second extracellular loop.

5. A pharmaceutical composition comprising an amount of the polypeptide of claim 1 effective to inhibit the fusion of HIV-1 to $CD4^+$ cells and a pharmaceutically acceptable carrier.

6. A polypeptide having a sequence corresponding to that of a portion of a HIV-1 envelope glycoprotein capable of specifically binding to the chemokine receptor CCR5.

7. The polypeptide of claim 6, wherein the glycoprotein is gp120.

8. A pharmaceutical composition comprising an effective amount of the polypeptide of claim 6 effective to inhibit the fusion of HIV-1 to $CD4^+$ cells and a

pharmaceutically acceptable carrier.

9. An antibody or a portion of an antibody capable of binding to a chemokine receptor on a $CD4^+$ cell and inhibiting HIV-1 infection of the cell.

10. A pharmaceutical composition comprising an amount of the antibody of claim 9 effective to inhibit HIV-1 infection of $CD4^+$ cells and a pharmaceutically acceptable carrier.

11. A method of treating an HIV-1 infected subject which comprises administering to the subject the polypeptide of any of claims 1, 2, 3, 4, 6, or 7 in an amount effective to inhibit the fusion of HIV-1 to $CD4^+$ cells of the subject and thus treat the subject.

12. A method of reducing the likelihood of a subject from becoming infected by HIV-1 which comprises administering to the subject the polypeptide of any of claims 1, 2, 3, 4, 6, or 7 in an amount effective to inhibit the fusion of HIV-1 to CD4+ cells of the subject and thus reduce the likelihood of HIV-1 infection.

13. A method for inhibiting HIV-1 infection of $CD4^+$ cells which comprises contacting such $CD4^+$ cells with a non-chemokine agent capable of binding to the chemokine receptor CCR5 in an amount and under conditions such that fusion of HIV-1 to the $CD4^+$ cells is inhibited, thereby inhibiting HIV-1 infection of the cells.

14. The method of claim 13, wherein the non-chemokine agent is an oligopeptide.

15. The method of claim 13, wherein the non-chemokine agent is a polypeptide.

16. The method of claim 13, wherein the non-chemokine agent is a nonpeptidyl agent.

17. A non-chemokine agent capable of binding to the chemokine receptor CCR5 and inhibiting the fusion of HIV-1 to $CD4^+$ cells.

18. A pharmaceutical composition comprising an amount of the non-chemokine agent capable of binding to the chemokine receptor CCR5 and inhibiting the fusion of HIV-1 to $CD4^+$ cells effective to inhibit HIV-1 infection of $CD4^+$ cells and a pharmaceutically acceptable carrier.

19. A molecule capable of binding to the chemokine receptor CCR5 and inhibiting fusion of HIV-1 to $CD4^+$ cells comprising a non-chemokine agent linked to a ligand capable of binding to a cell surface receptor of the $CD4^+$ cells other than the chemokine receptor such that the binding of the non-chemokine agent to the chemokine receptor does not prevent the binding of the ligand to the other receptor.

20. The molecule of claim 18, wherein the cell surface receptor is CD4.

21. The molecule of claim 18, wherein the ligand comprises an antibody or a portion of an antibody.

22. A molecule capable of binding to the chemokine receptor CCR5 and inhibiting fusion of HIV-1 to $CD4^+$ cells comprising a non-chemokine agent linked to a compound

capable of increasing the *in vivo* half-life of the non-chemokine agent.

23. The molecule of claim 21, wherein the compound is polyethylene glycol.

24. A pharmaceutical composition comprising an amount of the molecule of claim 19, 20, 21, 22 or 23 effective to inhibit fusion of HIV-1 to $CD4^+$ cells and a pharmaceutically acceptable carrier.

25. A method for reducing the likelihood of HIV-1 infection in a subject comprising administering the pharmaceutical composition of claim 19, 20, 21, 22 or 23 to the subject.

26. A method for treating HIV-1 infection in a subject comprising administering the pharmaceutical composition of claim 19, 20, 21, 22 or 23 to the subject.

27. A method for determining whether a non-chemokine agent is capable of inhibiting the fusion of HIV-1 to a $CD4^+$, $CCR5^+$ cell which comprises:

(a) contacting the $CD4^+$, $CCR5^+$ cell, after it is labeled with a first dye, with a cell expressing an appropriate HIV-1 envelope glycoprotein on its surface, and labeled with a second dye, in the presence of an excess of the agent under conditions permitting fusion of the $CD4^+$, $CCR5^+$ cell to the cell expressing the HIV-1 envelope glycoprotein on its surface in the absence of an agent known to inhibit fusion of HIV-1 to $CD4^+$, $CCR5^+$ cells, the first and second dyes being selected so as to allow resonance energy transfer between the dyes;

(b) exposing the product of step (a) to conditions which would result in resonance energy transfer if fusion has occurred; and

(c) determining whether there is resonance energy transfer, the absence or reduction of transfer indicating that the agent is capable of inhibiting fusion of HIV-1 to $CD4^+$ and $CCR5^+$ cells.

28. The method of claim 27, wherein the agent is an oligopeptide, a polypeptide or a nonpeptidyl agent.

29. The method of claim 27, wherein the $CD4^+$ cell is a PM1 cell.

30. The method of claim 27, wherein the cell expressing the HIV-1 envelope glycoprotein is a HeLa cell expressing $HIV\text{-}1_{JR\text{-}FL}$ gp120/gp41.

31. A transgenic nonhuman animal which comprises an isolated DNA molecule encoding the chemokine receptor CCR5.

32. The transgenic nonhuman animal of claim 31 further comprising an isolated DNA molecule encoding a sufficient portion of the CD4 molecule to permit binding the HIV-1 envelope glycoprotein.

33. A transgenic nonhuman animal which comprises an isolated DNA molecule encoding the chemokine receptor CCR5 and an isolated DNA molecule encoding fusin.

34. The transgenic nonhuman animal of claim 33 further comprising an isolated DNA molecule encoding a sufficient portion of the CD4 molecule to permit

binding the HIV-1 envelope glycoprotein.

35. A transformed cell which comprises an isolated nucleic acid molecule encoding the chemokine receptor CCR5.

36. An agent capable of inhibiting HIV-1 infection and capable of binding to a chemokine receptor without substantially affecting the said chemokine receptor's capability to bind to chemokines.

37. The agent of claim 36, wherein the said chemokine receptor is CCR5.

38. The agent of claim 36, wherein after the binding of the agent to the said chemokine receptor, a two fold higher concentration of the chemokine is required to achieve the degree of binding observed if the chemokine receptor had not been bound to the agent.

39. The agent of claim 36, wherein after the binding of the agent to the said chemokine receptor, a ten fold higher concentration of chemokine is required to achieve the degree of binding observed if the chemokine receptor had not been bound to the agent.

40. The agent of claim 36, wherein the agent is an oligopeptide, a nonpeptidyl agent or a polypeptide.

41. The agent of claim 40, wherein the polypeptide is an antibody or a portion of an antibody.

42. A pharmaceutical composition comprising an amount of the agent of claim 37, 38, 39, 40 or 41 effective to inhibit fusion of HIV-1 infection and a pharmaceutically acceptable carrier.

43. A method for inhibiting HIV-1 infection of $CD4^+$ cells which comprises contacting such $CD4^+$ cells with an agent capable of inhibiting HIV-1 infection and capable of binding to a chemokine receptor without substantially affecting the said chemokine receptor's capability to bind to chemokines.

44. A molecule capable of binding to the chemokine receptor CCR5 and inhibiting fusion of HIV-1 to $CD4^+$ cells comprising the agent of claim 36 linked to a compound capable of increasing the *in vivo* half-life of the non-chemokine agent.

45. The molecule of claim 44, wherein the compound is polyethylene glycol.

46. A pharmaceutical composition comprising an amount of the molecule of claim 44 or 45 effective to inhibit fusion of HIV-1 to $CD4^+$ cells and a pharmaceutically acceptable carrier.

47. A method for reducing the likelihood of HIV-1 infection in a subject comprising administering the pharmaceutical composition of claim 42 or 46 to the subject.

48. A method for treating HIV-1 infection in a subject comprising administering the pharmaceutical composition of claim 42 or 46 to the subject.